HD MicroSystems™
An Enterprise of Hitachi Chemical and DuPont Electronics

MATERIAL SAFETY DATA SHEET

***** IDENTIFICATION *****

NAME: PA-400R SYNONYMS: POLYIMIDE ANCILLARY.
CHEM.FAMILY: Substance. FORMULA: Proprietary.

MANUFACTURER:
HD MicroSystems™
Cheesequake Road
Parlin, NJ 08859

INFORMATION & EMERGENCY TELEPHONE NOS:
INFORMATION: Product: (800) 441-7515
EMERGENCIES: Medical: (800) 441-3637
Transport (CHEMTREC): (800) 424-9300

All Ingredients in This Product are TSCA Listed/Reported.

***** PHYSICAL DATA *****

FORM: Liquid. ODOR: Mild Fruity.

APPEARANCE: Colorless. SOLUBILITY IN WATER: Moderate.

***** COMPONENTS *****

Material(s):	CAS#	V.P. mm Hg @ 20C	Weight %
1-Methoxy-2-Propanol Acetate.	108-65-6	3.7	> 60%

***** HAZARDOUS REACTIVITY *****

INSTABILITY:
The product is normally stable.

INCOMPATIBILITY:
Avoid contact with:
Strong bases; Strong acids; Strong oxidizing agents.

DECOMPOSITION:

Decomposition products:
Carbon Dioxide (CO2); Carbon Monoxide (CO); Water.

POLYMERIZATION:
Polymerization will not occur.

***** FIRE & EXPLOSION DATA *****

FLASHPOINT: 110 F Closed cup

FIRE & EXPLOSION HAZARDS:
KEEP AWAY FROM SPARKS AND OPEN FLAMES. Do not smoke in area with open product;
If the product may be heated above its flashpoint during processing, remove sources of ignition such as open sparks, flames or static discharge to prevent vapor ignition.

EXTINGUISHING MEDIA:
Water spray, dry chemical or carbon dioxide.

SPECIAL FIREFIGHTING INFORMATION:
Toxic decomposition products may form under fire conditions. (See Decomposition Section.);
Wear full protective clothing and a full facepiece, positive pressure, self-contained breathing apparatus (SCBA);
Decontaminate contaminated clothing and equipment with soap and water. Dispose of residues per federal, state, and local regulation. (See Waste Disposal Section.).

***** HEALTH HAZARD INFORMATION *****

PRINCIPAL HEALTH EFFECTS:

>>>1-Methoxy-2-Propanol Acetate
****Toxic effects described in animals include: BY SKIN OR EYE CONTACT: Mild skin irritation; Eye irritation. Toxic effects of repeated or prolonged animal exposures include: BY

SKIN OR EYE CONTACT: Skin effects; BY INHALATION: Respiratory effects; Degeneration of the olfactory epithelium; Renal effects; Disturbed equilibrium; Nonspecific effects, e.g. weight loss and irritation; Liver effects; ****Additional animal tests have shown: No genetic damage in bacterial or mammalian cell cultures; No developmental toxicity. ****Human health effects of overexposure may include: BY SKIN OR EYE CONTACT: Skin irritation with discomfort or rash; Eye irritation with discomfort, tearing, or blurring of vision; BY INHALATION: Nonspecific discomfort, e.g., nausea, headache or weakness. ****Human effects of higher level acute, repeated or chronic overexposure may include: BY INHALATION: Irritation of the upper respiratory passages with coughing and discomfort. ***In addition: Animal tests indicate commercial grade 1-methoxy-2-propanol acetate does not cause developmental toxicity. However, tests of pure 2-methoxy-1-propanol acetate in rabbits and rats by inhalation have shown developmental toxicity. 2-methoxy-1-propanol acetate did not show developmental toxicity by skin contact. 2-methoxy-1-propanol acetate is present in commercial grade 1-methoxy-2-propanol acetate in low concentrations.

ANIMAL DATA:

>>>1-Methoxy-2-Propanol Acetate
Skin absorption LD50: 5,000 mg/kg in rabbits
Oral LD50: 8,532 mg/kg in female rats.

CARCINOGENICITY LISTING:

No ingredients of this product are designated by IARC, NTP, OSHA, ACGIH or Dupont as potential carcinogens.

EXPOSURE LIMITS:
Workplace exposures should be kept below the following limits:

	AIHA		ACGIH		OSHA	
Name/Units	8hr	15min	8hr	15min	8hr	15min
PROPYLENE GLYCOL MONOMETHYL ETHER ACETATE						
Units: mg/m3	541					

NOTES ON EXPOSURE LIMITS:
PELs - OSHA Permissible Exposure Limits - 29 CFR 1910.1000, Subpart Z, or specific substance standards;
TLVs - ACGIH Threshold Limit Values - published by American Conference of Governmental Industrial Hygienists, 6500 Glenway Avenue, Cincinnati, OH 45211;
WEELs- AIHA Workplace Environmental Exposure Limits - published by the American Industrial Hygiene Association, 2700 Prosperity Avenue, Suite 250, Fairfax, VA 22031;
AELs - Dupont Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits are lower than AEL in effect, government limits shall take precedence;
(C) = "ceiling", limit not to be exceeded for any time period;
(S) = "skin" , skin absorption may contribute significantly to the ingredient's internal toxicity.

***** FIRST AID INSTRUCTIONS *****

Skin Contact: Flush skin with water after contact. Wash contaminated clothing before reuse.
Eye Contact: For eye contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion: If swallowed, immediately give two glasses of water and induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

***** PROTECTION INFORMATION *****

Adequate local ventilation should be used to keep exposures below applicable limits;
Other engineering controls such as totally enclosed handling systems are also preferred;
Respiratory protection will be needed if exposures can not be kept below applicable limits by other means.

Respiratory Protection:
If respirators are needed to meet applicable limits, a respiratory protection program up to the level of OSHA Standard 29 CFR 1910.134 is mandatory. This includes air monitoring, selection, medical approval, training, fit testing, inspection, maintenance, cleaning, storage, etc..
Selection of a suitable respirator will depend on the properties of the contaminant(s) and their actual or

expected air concentration(s) versus applicable limits. Consult ANSI Standard Z88.2 for decision logic to select appropriate NIOSH/MESA approved respirators;

Gloves:

Gloves should be used when the possibility of skin contact exists;
The suitability of a particular glove and glove material should be determined as part of an overall glove program. Considerations may include chemical breakthrough time; permeation rate; abrasion, cut and puncture resistance; flexibility; duration of contact; etc.

Other Protection Practices:

Appropriate eye protection such as chemical splash goggles should be used if the possibility of eye contact exists;
Protective outer clothing should be used where the possibility of body contact exists. Contaminated work clothing should not be allowed out of the workplace;
Do not smoke, consume or store food or drinks in areas where the product is handled or stored. After handling the product, wash hands thoroughly before leaving the work area;
Additional engineering controls, work practices and training may be required depending on exposure levels. These are discussed in the OSHA Respiratory Protection Standard (29 CFR 1910.134) and OSHA Hazard Communication Standard (29 CFR 1910.1200);
Do not breath dust. Avoid contact with eyes, skin, or clothing. Wash thoroughly after handling.

***** DISPOSAL INFORMATION *****

Spill, Leak or Release:

FOR SMALL SPILLS, absorb on rags, sand or other absorbent material;
FOR LARGE SPILLS, get workers out of affected area. If flammable liquids or vapors may be present, turn off electrical devices or other sources of sparks or flames. WEAR PROTECTIVE EQUIPMENT. Use supplied-air respiratory protection if vapor concentrations are not known;
Contain spill at source by diking or absorbing with sand. Do not allow spill to spread to or intentionally flush to sewer or ground. Wash area thoroughly. Adequately ventilate area;
Spill residue, cleaning rags and absorbent may be considered hazardous. (See Waste Disposal Section.).

Waste Disposal:

Components of this product may be considered hazardous; Consult applicable Federal, State, and local regulations for allowable disposal methods.

***** PRODUCT INFORMATION *****

Contaminated Items:

Empty product containers, contaminated clothing and cleaning materials, etc. should be considered hazardous until decontaminated or properly disposed of. (See Waste Disposal Section.).

***** ADDITIONAL INFORMATION *****

SPECIAL NOTES:

No ingredients of this product are subject to the reporting requirements of section 313 of Title III of the Superfund Amendment and Reauthorization Act of 1986 and 40 CFR part 372.

DENSITY = .968 g/mL

CALIFORNIA PROPOSITION 65: WARNING: This product does not contain chemical known to the state of California to cause cancer, birth defects, or other reproductive harm.

This product is a physical mixture. The health effects information about this product is based on the individual ingredients; The data in this Material Safety Data Sheet relates only to the specific product designated herein and does not relate to its use in combination with any other material or in any process.

Date of latest MSDS revision: 11/17/99

Person Responsible for MSDS:

Safety Coordinator - MSDS
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